

***QSTARZ***®



**BT-Q890**

# ***GPS* nano**

eXtreme 66-CH Performance Bluetooth A-GPS Receiver  
Wired, Wireless Navigation, and eXtreme Sports Mode TRIPLE-IN-ONE





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## 1. Overview

Thank you for choosing Qstarz **BT-Q890** eXtreme 66-Channel Performance **Bluetooth**® GPS Receiver, built-in second generation GPS chipset MTK with 66 channels tracking, provides hyper performance to meet the market's expectation by fastest position fix with its high speed calculating technology. It combines wireless **Bluetooth** and wired G-Mouse functions for your convenience plus 1~5Hz adjustable compatibility giving you even higher positioning and accuracy purpose during eXtreme sports.

## 2. Package Content

- (1) GPS Unit BT-Q890
- (2) Cigarette Adapter
- (3) Mini USB Cable (Optional)
- (4) Quick Guide
- (5) Warranty Card

1.



2.



3.



### 3. Product Specification

General	
GPS Chip	MTK II GPS Module
Frequency	L1, 1575.42MHz
C/A Code	1.023MHz chip rate
Channels	66-CH Performance Tracking
Antenna (Internal)	Built-in patch antenna with LNA
Sensitivity	Tracking -165dBm
Datum	WGS84
Performance Characteristic	
Position	Without aid: 3.0m 2D-RMS
Accuracy	<3m CEP(50%) without SA (horizontal) DGPS (WAAS, ENGOS, MSAS): 2.5m
Velocity	Without aid: 0.1m/s, DGPS (WAAS, ENGOS, MSAS): 0.05m/s
Time	50 ns RMS
Cold/Warm/Hot Start	35/33/1 sec, average
Dynamic Condition	
Altitude	<18,000m
Velocity	<515m/sec
Acceleration	<4g
Protocol	
GPS Output Data	Protocol: NMEA 0183 (V3.01) -GGA, GSA, GSV, RMC
Baud Rate	115,200 bps
Power	
Built-in rechargeable Li-ion battery, Up to 12 hrs after fully charged	
Bluetooth	
Standard	Fully compliant with <i>Bluetooth</i> V1.2
<i>Bluetooth</i> Profile	Serial Port Profiles (SPP), Up to 10 meters
Others	
Size / Weight	62 (L) X 38 (W) X 7 (H) mm
Operating Temperature	- 10 °C to + 60 °C
Storage Temperature	- 20 °C to + 60 °C
Charging	0 °C to + 45 °C

## 4. Product Notice

### On Handling

- If BT-Q890 isn't used in temperature between  $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$ , its battery charging capability will decrease. Leave the BT-Q890 far from heat or high temperature environment. And also, do not expose your BT-Q890 in temperature higher than  $140^{\circ}\text{F}/60^{\circ}\text{C}$  to prevent the battery inside BT-Q890 from overheating, exploding or burning itself. The built in battery inside the BT-Q890 should be recycled.
- It is recommended to turn BT-Q890 off in the hospital. Wireless GPS receiver may interfere with the medical equipments which use radio frequency.
- The manufacturer assumes no responsibility for any damages and loss resulting from the use of this manual, or from deletion of data as a result of malfunction, dead battery, or from misuse of the product in any way.
- Please clean the unit with a dry and clean soft cloth. Do not use harsh cleaning solvents, chemicals, alcohol, or strong detergents.
- Do not attempt to open BT-Q890 by yourself. Unauthorized hacking may damage the unit, and void your warranty.

### On Battery & Safety

- Charging time is about 1 hour typically for this unit. We suggest disconnecting the unit from the cigarette charger or AC charger after the unit has been fully charged.
- Be sure to use the supplied cigarette charger including in package; otherwise excessive voltage may be applied to the unit and may cause smoke, fire, or accident.
- When the unit is not in use or not charged, we suggest disconnecting the unit from the cigarette charger. Otherwise battery drain may result.
- Note that the built in battery cannot be charged outside the

temperature range 0°C ~ 45°C.

- The charging time might be extended if you use the product while charging
- Do not heat or leave the unit in high temperature or direct sunshine for a long period of time as the built-in battery capacity will deteriorate, or will become unchargeable.

## 5. Main features

- Adopt MTK II chipset with super 66-CH performance and high sensitivity to -165dBm
- Up to 12hrs operating time for GPS navigation
- Fast Position Fix ,Cold start 35s, Warm start 33s, Hot start 1s
- G-Mouse + *Bluetooth* in one: wired and wireless GPS receiver
- Adjustable 1~5Hz update rate for the demand of eXtreme sports
- Smart power control – Auto On-Off function
- A-GPS support boosts the fix speed to 15sec faster
- DGPS (WAAS+EGNOS+MSAS), QZSS support
- Compatible with *Bluetooth* Serial Port Profile (SPP) in 10m wirelessly

## 6. Introduction

### 6-1. Appearance

1. Power Button (ON/OFF/Enable 5Hz mode/Disable 5Hz mode)
2. Power jack (mini USB type)
3. Battery status LED (Red/Green)
4. *Bluetooth* status LED (Blue)
5. GPS status LED (Orange)
6. eXtreme status LED (Green)
7. Internal antenna



## 6-2. Hardware Function

Hardware Function	Description
Power Jack	Take the power cable and connect it to the power jack (mini USB type) for charging only
Power Button (On)	Press power button and hold for 4 sec to power BT-Q890 on.
Power Button (Off)	Press power button and hold for 4 sec to power BT-Q890 off
Power Button (Enable 5Hz mode)	After power BT-Q890 on, press power button and hold for 2 sec to enable eXtreme 5Hz sport mode. Then the eXtreme status LED of BT-Q890 would start to blink (green).
Power Button (Disable 5Hz mode)	Press power button and hold for 2 sec again to disable eXtreme 5Hz sport mode. The eXtreme status LED (green) would be off.

**NOTE: eXtreme 5Hz sport mode would cost more battery life.**

## 6-3. Charging Battery

For the first time using the BT-Q890, please charge battery until it is fully charged. Take the power cable and connect it to the power jack (mini USB type) and recharge through travel charger or car cigarette adaptor. This will begin to charge the battery. Charging time is 1 hours typically.







- When the Power LED is Red, battery power is low status. Please recharge.
- When the Power LED is Green, the battery is under charging mode.
- When the Power LED is off, the battery is fully charged.



**NOTE: The Cigarette Adaptor can only be used to charge BT-Q890. Please don't make use of it with devices other than BT-Q890.**

**NOTE 2: Please recharge the battery on a regular interval if the unit is not used for a long time.**

## 6-4. LED Indicators

LED Status		Flash	ON	OFF
Power (Red/Green)			Recharging (Green) Low Power (Red)	Fully charged
Bluetooth (Blue)		<u>Flash per 2 sec.:</u> Bluetooth connected and transmitting Mode <u>Flash per 5 sec.:</u> Power saving mode	Not connected /Pairing	GPS not powered / eXtreme Mode is on
GPS (Orange)		<u>Flash per 1 sec.:</u> GPS position is fixed, Navigation	Detecting Satellite, GPS position not fix	GPS not powered
eXtreme (Green)		eXtreme Sport Mode is on		eXtremeSport Mode is off

## 6-4. Function of Auto On-Off (Power saving mode)

BT-Q890 supports **Auto On-Off** (Power saving mode). It can automatically enter sleeping mode after the *Bluetooth* connectivity is turned off, so the Blue LED will turn to flash every 5 seconds. Thus you can always power it on with very low power consumption. Under power saving mode, when detecting *Bluetooth* is being connected, BT-Q890 will auto wake up itself and the blue LED will turn to flash every 2 seconds and GPS Orange LED will be also On.

**Note: Power saving mode would not function when USB is plugged in.**

## 7. Start to use

### 7-1. Fully charge the battery when using at the first time

A fully charged battery can last for 12 hours continuously operation (under optimum conditions).

### 7-2. Activate the *Bluetooth* function in your PDA/Smart phone or PC

Before activating the *Bluetooth* function in your PDA/PC, please switch on BT-Q890 Receiver for paring and check if your device is equipped with *Bluetooth* function. If not, you may need to acquire an optional CF/SD *Bluetooth* card or *Bluetooth* dongle.

#### **NOTE 1:**

*BT-Q890 would be identified as "Qstarz GPS" under Bluetooth Manager. In further use, you just need to click it to connect to this Bluetooth GPS Receiver.*

#### **NOTE 2:**

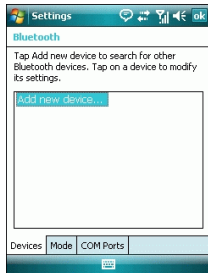
*The pairing procedure is required to execute in the first time only. And the pass code is "0000" if required.*

#### **NOTE 3:**

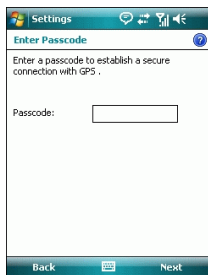
*Select correct com port and baud rate: 115,200 under your navigation software (Most of navigation software can auto-detect Bluetooth Com port, so you do not need to setup manually).*

## 7-3. Create *Bluetooth* Setting (Windows Mobile 5/6 for Pocket PC)

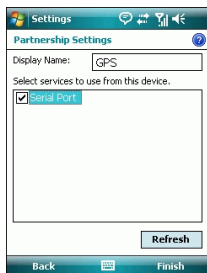
1. Switch BT-Q890 on.
2. From the **Start** menu, click **Settings**. On the **Connections** tab, click the *Bluetooth* icon
3. On the **Devices** tab, click **Add New Device...** The settings application will search for your device. When it is found, click **Next**.



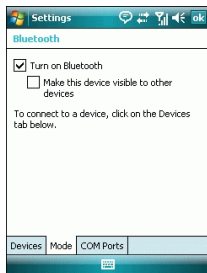
4. Enter the passcode "0000" and click **Next**.



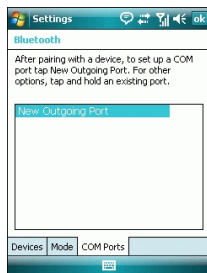
5. On the **Partnership Settings** screen, select **Serial Port** and click **Next**



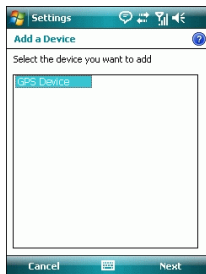
6. Select the **Mode** tab and check the **Turn on Bluetooth** checkbox if it is not already checked.



7. Select the **COM Ports** tab and click **New Outgoing Port**

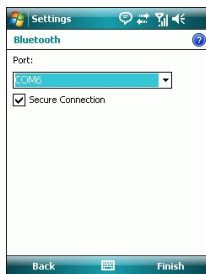


8. Select "Qstarz GPS" from the **Add a Device** list and click **Next**



9. From the **Port** drop-down list, select a port number. Remember the port you choose. You will need it when you configure the GPS Intermediate Driver.

10. Click **Finish** and exit the *Bluetooth* Control Panel item.

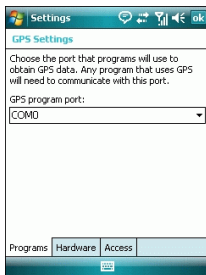


## 7-4. Configure the GPS Intermediate Driver with the GPS Settings icon

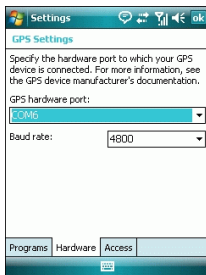
The GPS Intermediate Driver is a software layer between a Windows Mobile application and the GPS hardware drivers. This allows applications to work with a variety of GPS hardware. The GPS Intermediate Driver uses the registry to determine what COM port should be used to communicate with the GPS hardware. The recommended way to configure the registry to work with your GPS device is the GPS Settings icon

1. From the **Start** menu, click **Settings**. On the **System** tab, click the **External GPS** icon. On some devices, this item has a different name.

2. On the **Programs** tab, select any available COM port from the **GPS Program Port** drop-down list. The GPS data sent through the GPS Intermediate Driver is streamed to applications through this port. This should not be the same port that your GPS receiver is configured to use. If your application can't receive GPS data stream, leave **GPS Program Port** for empty. Applications will use **GPS Hardware Port** as communication port.



3. On the **Hardware** tab, select the COM port BT-Q890 is configured to use from the **GPS Hardware Port** drop-down list



4. On the **Access** tab, make sure that the **Manage GPS Automatically** checkbox is checked



## 7-5. Activate G-Mouse function and Configuration via USB connection

If you are willing to use G-Mouse function of Q890, a USB cable and driver installation are needed. Please prepare a USB cable and install the driver.

Driver could be downloaded from our website:

[www.qstarz.com](http://www.qstarz.com)



## 7-6. Switch to eXtreme 5Hz sport mode and activate A-GPS by QstarzGpsView software application

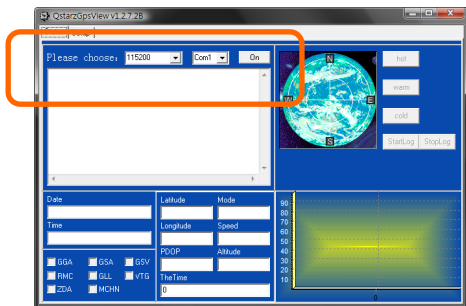
**eXtreme 5Hz sport mode** allows your GPS to get the same or even higher positioning and accuracy ability during eXtreme sports.

**A-GPS** is a system where outside sources, such as an assistance server and reference network, help a GPS receiver boosts performance beyond that of the same receiver in a stand-alone mode by downloading the almanac data from an assistance server.

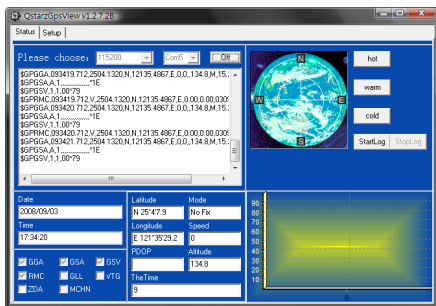
***Note1: A-GPS can boost GPS warm start speed to always lower than 15sec fix after the first fix. The A-GPS efficiency will decrease when time goes by. After it expires, you would have to download almanac data again or delete it because the acceleration efficiency of fix will become totally ineffective.***

***Note2: Please don't update the almanac data by Bluetooth interface.***

1. Connect BT-Q890 with your PC by mini-USB cable.
2. Switch BT-Q890 on.
3. Execute QstarzGpsView.exe from Driver CD "Tools\QstarzGpsView.exe".
4. Select COM port (To find the valid com port, please go to <Device Manager> and expand the <Ports (COM & LPT)> and check "GPS USB Serial Interface Driver") and set the baud rate to **115200**.

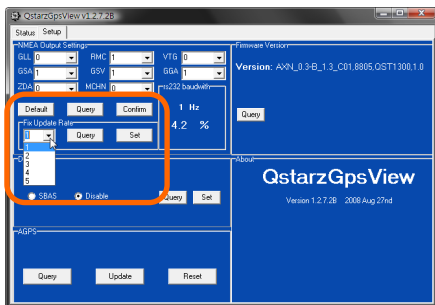


5. Click **On** button to establish the communication between BT-Q890 and your PC. If the connection is successful, the NMEA stream will keep showing.

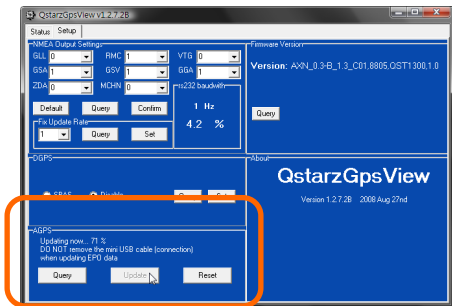


6. Click **Setup** tab, and you can change to eXtreme Sport mode under **Fix Update Rate**. The higher number means the device can bear extremen environment. After select an update rate, click **Set** to save

the setting.



7. Click **Update** button under AGPS to update the almanac data. The program will connect to assistance server and download almanac data automatically. You can also check the period of AGPS effectiveness by clicking **Query**. Clear almanac data by clicking **Reset**.



## 6-7. Start your navigation software

Activate your navigation software and make sure to select the correct “COM Port”.


**NOTE 1:** In the map software such as TomTom, you might need to change preference and set “Other Bluetooth GPS” according to PDA/phone model. In some case please consult map software company to vary the setting if you have issue on positioning.

**NOTE 2:** There might be specific setting requirement per navigation software. Such as Tomtom, please delete other GPS settings under Tomtom software, and keep one only.

## 7-7. Useful reference 5Hz application - RaceChrono


RaceChrono is a GPS based lap timing software for Nokia S60 smart phones. It can be used to measure lap times on almost any vehicle and track. It can be used to measure lap times for example for motorbikes, bicycles, cars, water jets and quadbikes. Most important of all, it supports 5Hz update rate.

Please go to <http://www.racechrono.com> for the further information.



RaceChrono

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Version 1.00

Download

RaceChrono is a GPS based lap timing software for Nokia S60 smart phones. It can be used to measure lap times on almost any vehicle and track. It can be used to measure lap times for example for motorbikes, bicycles, cars, water jets and quadbikes.

**RaceChrono version 1.00 released!**

I'm very happy to announce that the version 1.00 is now released! It has simplified live timer, improved optimal lap browsing, better OBD-II support and session exports in GPX format. Also it features many user interface improvements!

**FAQ: Which Phones does RaceChrono work on?**

A: RaceChrono works on phones with Nokia S60 2nd edition feature pack 1 and above, or Nokia S60 3rd edition.

**FAQ: How does RaceChrono work?**

RaceChrono uses GPS position data to determine lap times and performance.

[Read more](#)

## 7-8. Start your navigation software

Activate your navigation software and make sure to select the correct "COM Port".

**NOTE 1:**

*In the map software such as TomTom, you might need to change preference and set "Other Bluetooth GPS" according to PDA/phone model. In some case please consult map software company to vary the setting if you have issue on positioning.*

**NOTE 2:**

*There might be specific setting requirement per navigation software. Such as Tomtom, please delete other GPS settings under Tomtom software, and keep one only.*

## 8. Trouble Shooting

Problems	Reasons	Methods
No position output but timer is counting	Weak or no GPS signal can be received at the place of BT-Q890	Find an open space for your BT-Q890
Execute fail	<i>Bluetooth</i> function unstable	Re-Start PDA or PC or re-install software
Can not turn on the COM port	Install BT-Q890 incompletely or the COM port of the device is being used	Install BT-Q890 completely or stop other device that is being used.
Can not find out BT-Q890	Poor connection	Re-Start PDA or PC and re-install software.
No Signal	No action for few minutes may cause the Pocket PC enter power saving mode. It may close the COM port at the same time.	Close the application and execute it again to re-open the COM port.
No Signal	Weak or no GPS signal when using <b>BT-Q890</b> indoor	Go outdoors to improve the poor GPS signal.

## 9. Safety Notices

### ***R&TTE / CE Notice***

This device is confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (89/336/EEC), Low-voltage Directive (73/23/EEC) and the Amendment Directive (93/68/EEC), the procedures given in European Council Directive 99/5/EC and 89/336/EEC.

The equipment was passed. The test was performed according to the following European standards:

EN 300 328-1

EN 301 489-1 / 17

EN60950

### ***FCC Notice***

This device complies with Part 15C, Part 15B and ID Application of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Spec. is subject to change without prior notice.

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